

# ARGONNE NATIONAL LABORATORY

## HIGH ENERGY PHYSICS DIVISION

# AWA

## ARGONNE WAKEFIELD ACCELERATOR

### CONDUCT OF OPERATIONS


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**Argonne National Laboratory  
Argonne Wakefield Accelerator (AWA)  
High Energy Physics Division**

**CONDUCT OF OPERATIONS**

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## **General Introduction**

The Argonne Wakefield Accelerator at Argonne National Laboratory is an experimental accelerator facility designed primarily to facilitate studies of new acceleration techniques. It consists of a 20 MeV rf photocathode based, high current linear accelerator and a separate, low current 4 MeV rf photocathode electron gun.

The equipment is used primarily by personnel in the High Energy Physics Accelerator R&D Group.

## **Purpose**

The purpose of this document is to provide information and/or instruction to ensure that AWA operations are conducted in an effective and consistent manner in accordance with appropriate AWA procedures and with applicable ANL and DOE requirements including environment, health, and safety.

## **Scope**

This document is issued to all AWA personnel and experimenters. AWA operating personnel are responsible for the operating performance and safe operation of the AWA. This document provides administrative instructions necessary for conduct of AWA operations.

## **I. AWA Organization**

- A. All AWA operations are controlled by the designated AWA Facility Manager. Safety requirements are line management responsibilities. The control of safety issues for the AWA is under the supervision of the HEPD Safety Committee. This Committee is responsible to the HEPD ES&H Administrator who, in turn, reports to the HEP Division Director.
- B. The Operating Report of the AWA provides information concerning the operating conditions of the AWA and of experiments performed.
- C. Qualified AWA Operators are accountable for their performances. Violations of approved operating practices can result in disciplinary action.

## **II. Operating Practices**

- A. The on-duty AWA Operator is responsible to the Facility Manager for safe operation of the AWA. Operations shall be in accord with AWA operating procedures for the facility and its sub-systems. The AWA Operator shall turn off any or all systems should he judge possible any unsafe situation.
- B. Safety practices for the AWA are found in the AWA Safety and Procedures Manual and in the ANL ES&H Manual.
- C. Control Room Operating Logs shall be completed whenever the AWA is operated. In addition to recording normal operating information, any unusual problems or other observations shall also be recorded in the logs.
- D. All AWA personnel shall follow HEPD and building 366 ALARA goals.
- E. Only qualified AWA operators or operator trainees, under direct supervision of a qualified operator are authorized to operate the AWA controls.

### **III. Activities**

A. The AWA Control Room activities shall be conducted in a manner that achieves safe and productive operation of the AWA facility.

B. Access to the AWA vault shall be regulated by the operator in charge except during "open access".

C. No non-qualified person shall be allowed entrance to potential AWA beam areas or other potentially hazardous areas unaccompanied by a qualified person. The AWA beam area is the area in which beam can enter or be produced solely by survey and secure of the area.

### **IV. Communications**

A. AWA operators shall announce change of state of the AWA beam (e.g. on/off) in accordance with the Safety and Procedures Manual. This announcement shall be made through the AWA local paging system.

B. Abbreviations or terminology uncommon to the subject matter shall be avoided in verbal and written communications.

### **V. Training**

A. Training shall employ written material. Certifiable training shall be required for AWA Operator, Laser Systems Operator, and rf Systems Operator. Tests for certification shall be prepared, given, and graded by the AWA Facility Manager. Graded tests and results will be provided to the Chairman of the HEPD Safety Committee for his information. Certification will be repeated on a yearly basis or if modifications have been made to AWA systems which significantly alter procedures.

B. All AWA users, from within the group as well as those outside, shall pass a written exam before being qualified. These exams will be prepared and administered in the same manner as certification exams (A. above).

### **VI. Investigation of Abnormal Events**

A. All unusual events shall be investigated by the responsible administrative persons.

B. All safety related events shall be investigated in accordance with the procedures defined in the HEPD Safety and Procedures Manual.

### **VII. Notifications**

Notification shall be given to other organizations as appropriate and in accordance with ANL policies.

### **VIII. Control of Equipment and Records of System Status**

A. AWA system status will be recorded in control room logs during experiments.

B. Records of equipment maintenance including dates performed and next scheduled maintenance shall be maintained in the control room.

C. Copies of drawings and circuit diagrams shall be maintained in the control room. Modifications and updates to these documents shall follow those described in the ANL ES&H Manual and in the HEPD Safety and Procedures Manual.

**IX. Lockouts/Tagouts**

Lockout/Tagout procedures shall follow those described in the ANL ES&H Manual and in the HEPD Safety and Procedures Manual.

**X. Independent Verification**

A. Operation of the radiation safety interlock system shall be verified at six month intervals by a representative of ES&H plus a qualified AWA operator. Keys, spare keys, and new locks for the interlock system must be ordered through the HEPD Administrator in a written request. (Ref. ANL Lockshop, Lock and Key Procedures (Jan 1992)).

B. Operation of the laser safety interlock system shall be verified at six month intervals by a representative of ES&H plus a qualified laser operator.

**XI. Logs**

The following logs shall be maintained for the AWA:

AWA Systems Log-- Operating settings, parameters, appropriate narratives  
Safety Log-- Records of interlock bypass and safety related work permits  
Maintenance Log-- Appropriate equipment maintenance information (dates, action, scheduled maintenance, findings, etc.)

**XII. Required Reading**

AWA Safety and Procedures Manual

**XIII. Operating Procedures**

AWA operating procedures plus system specific procedures for the laser and rf systems shall be maintained in the AWA Safety and Procedures Manual. All procedures shall be reviewed and approved by the HEPD Safety Committee.

**XIV. Postings**

The following information shall be posted conspicuously in the AWA control room:

Emergency procedures  
Building maps  
Emergency shutdown procedures  
Maintenance time logs  
Identity and phone numbers of emergency personnel

**XV. Identifying labels**

Equipment such as piping, valves and switches shall be labeled following guidelines defined in the ANL ES&H Manual.